taco™ 32

Research Use Only

Nucleic Acid Automatic Extraction System

User Manual

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Symbols

	Date of manufacturing
	Manufacturer
	Catalog number
	Serial number
	Alternative current
	Consult instruction for use
	Caution, consult accompanying documents
	WEEE symbol This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. Please follow your institutional requirements for disposal of the accessories.

1 Introduction

The **taco™** 32 Nucleic Acid Automatic Extraction System (**taco™ 32**) is a magnetic bead-based DNA extraction and purification device. Nucleic acids bind to silica-coated magnetic beads, which can be separated easily from biochemical contaminants through automatic transfer and processing of magnetic beads. Purified nucleic acids could be eluted from the beads after several washing steps.

1.1 Intended Use

taco™ 32 is developed to work with nucleic acid extraction kits developed by GeneReach Biotechnology Corporation (GeneReach) to extract nucleic acids from samples for research use purpose.

This product is intended for professional use by properly-trained laboratory technicians familiar with molecular biology techniques.

1.2 taco™ Extraction Principle

taco™ 32 is based on the magnetic separation technology to work with the specially designed disposable **taco™** Plate & Sleeve which are provided with all reagent kits.

Samples and reagents, including the magnetic particles, are dispensed into wells of the extraction plate manually according to instructions of the kit before extraction starts. The automated steps performed by **taco™ 32** include:

- Transfer of magnetic beads and mixing magnetic beads with samples.
- Sample lysis.
- Binding of nucleic acids to magnetic beads.
- Washing steps to remove biochemical other than nucleic acids.
- Elution of nucleic acids from magnetic beads.

2 taco™ 32 Layout

2.1 Product Components

Component	Quantity
taco™ 32	1
Power Cord	1
User Manual	1
Warranty Card	1

2.2 taco™ 32 Specifications

Specification	
Dimensions (W × D × H)	42 cm × 30 cm × 38 cm
Net Weight	23.4 kg
Power Requirement	100-120/200-240V AC, 50/60 Hz, 2A
Fuse	F2A/250V
Operating Temperature	16–30℃
Through-put	Up to 32 Samples
Extraction time	Within 1 hour

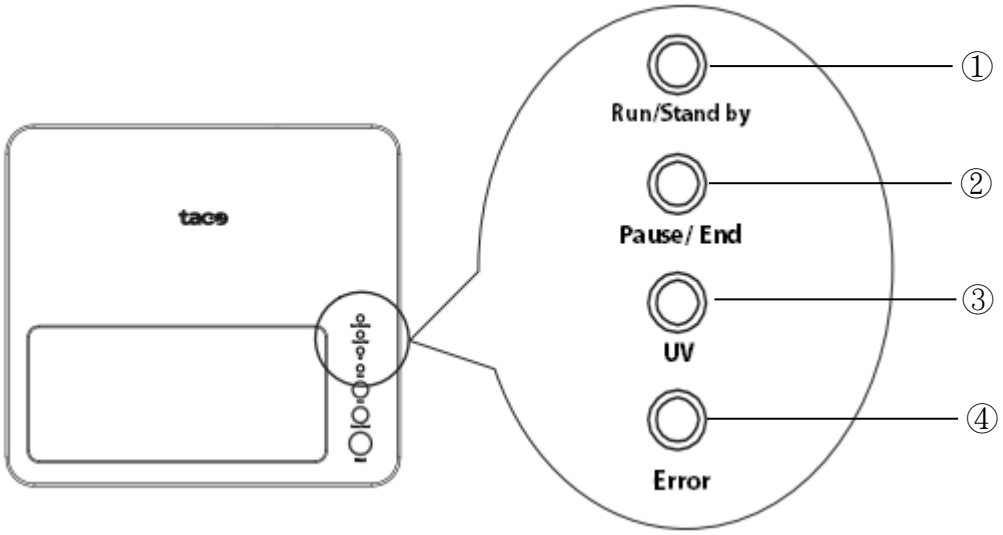
2.3 Equipments to Be Supplied by User

- **taco™** nucleic acid extraction kit
- **taco™** Plate & Sleeve
- Uninterrupted power system (UPS) (optional)
- Laminar air-flow (optional)
- Disposable gloves
- Protective goggles
- Lab coat

Note: To avoid power failure, connecting the **taco™ 32** to an UPS is recommended.

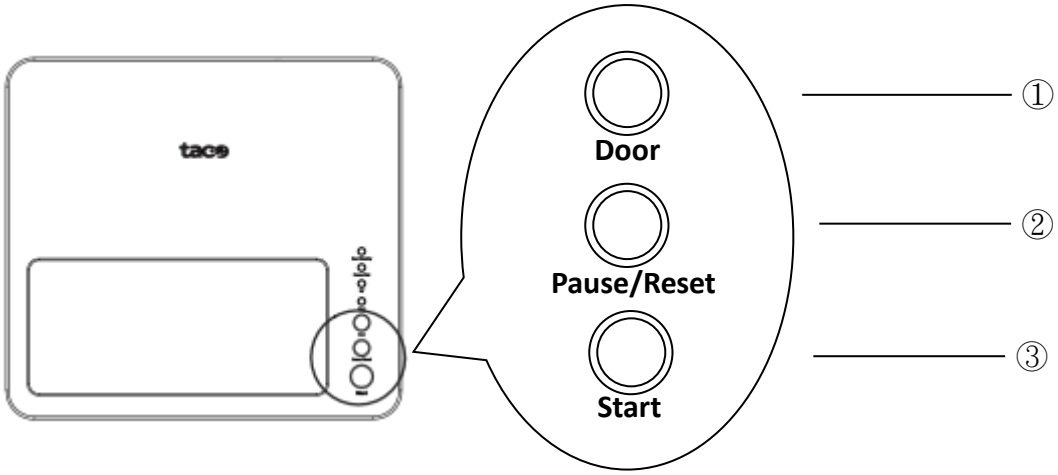
2.4 Front View of taco™ 32

2.4.1 LED Signal Signals



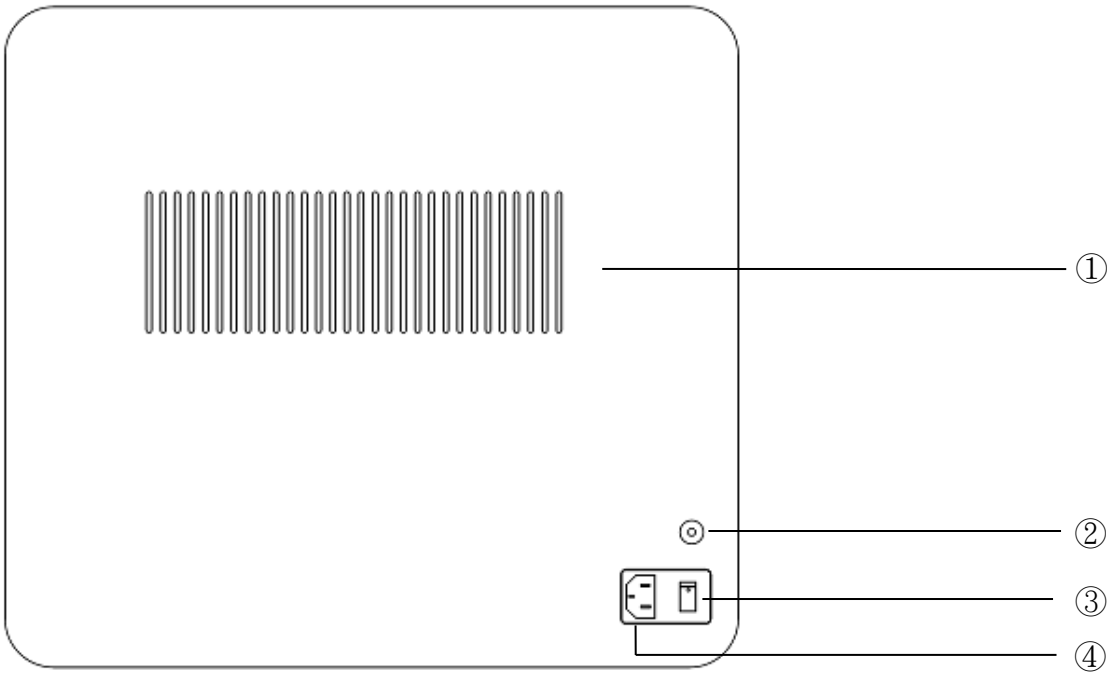
No	Indicator/*LED Color	Signal	Description
1	Run/Stand-by signal *Green	Lights on	Self-test passed. Ready to run.
		Lights flashing	Extraction in process.
2	Pause/End signal *Yellow	Lights on	Extraction finished.
		Lights flashing	Extraction paused.
3	UV on signal *Green	Lights on	UV lamp on.
4	Error signal *Red	Lights on	Any error occurred.

2.4.2 Operation Button



No	Button	Description	Function disabled under the following status
1	**Door**	Press to open/close the door.	1. During the extraction. 2. UV lamp is on.
2	**Pause/Reset**	Short press to pause the machine.	1. During magnetic bead transfer. 2. During magnetic bead drying. 3. UV lamp is on.
		While paused or extraction finished, long press to reset the machine	Reset is functional only when extraction is paused or finished.
3	**Start**	Press to start/resume the machine.	**1.** Door is open. **2.** UV lamp is on.

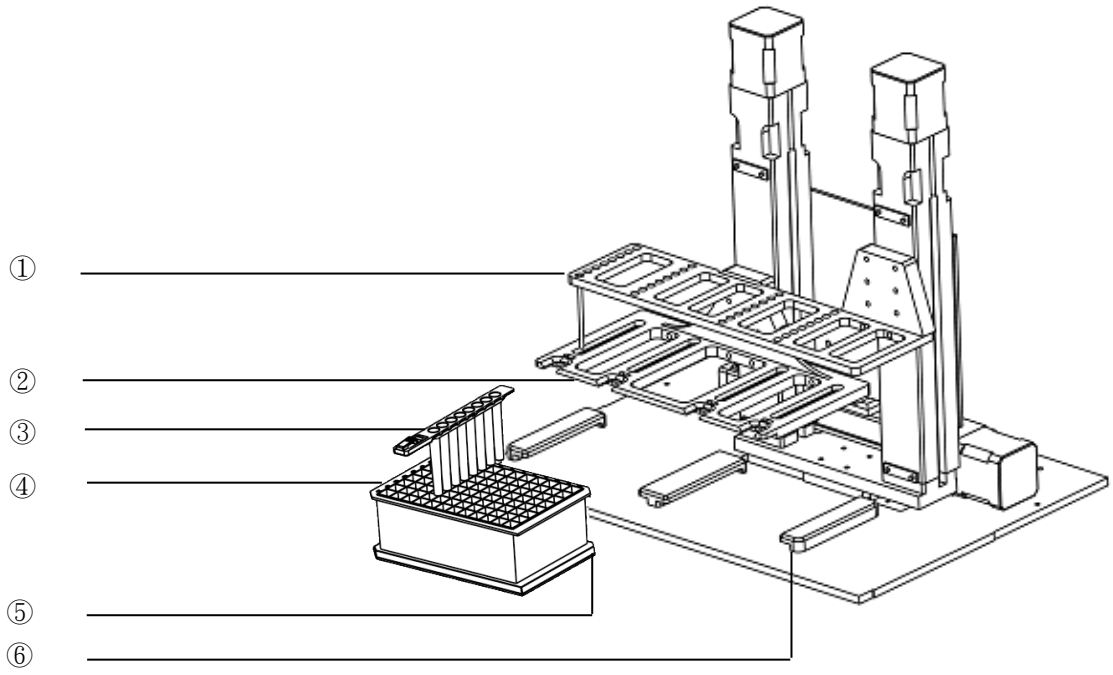
2.5 Rear View of taco™ 32



No	Item	Description
1	Cooling vents	Ventilation
2	UV lamp switch	To turn on/off the UV light
3	Main Switch	To turn on/off the main power
4	Socket	To connect to the power cord

2.6 Loading taco™ Plate & Sleeve

2.6.1 Loading the 96-Well Extraction Plate

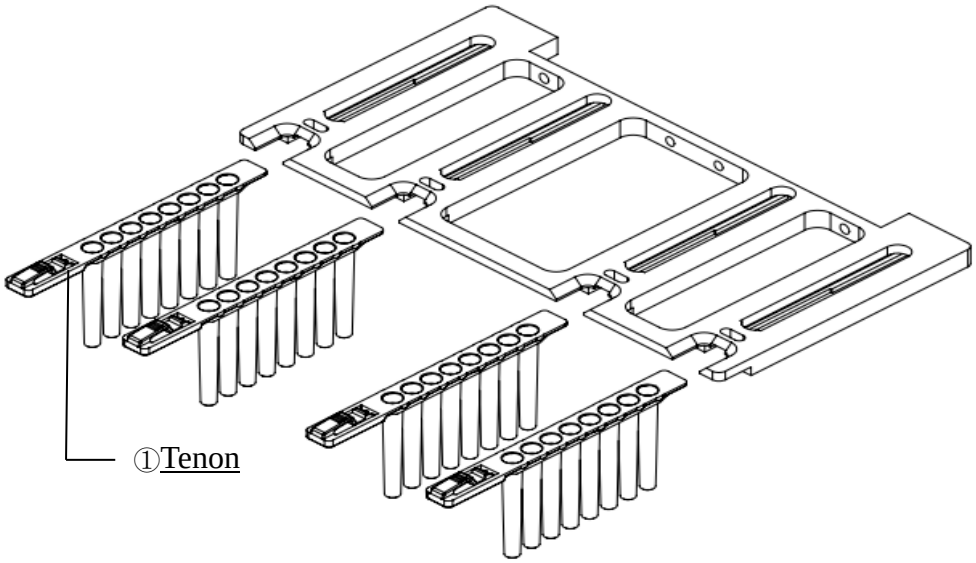


No	Item	Description
1	Magnetic rod module	Shipping anchor of the magnetic rod.
2	Lower rack	Housing for the Mixing Sleeve.
3	Mixing Sleeve	Protection of magnetic rods and mixing the sample with magnetic bead.
4	96-Well Extraction Plate	Deep well plate for extraction. Use two Mixing Sleeves for each 96-Well Extraction Plate when processing extraction.
5	Notched corner of the 96-Well Extraction Plate	The 96-Well Extraction Plate should be fully inserted into the plate holder with the notched corner pointing to far right.
6	Plate holder	Housing for the 96-Well Extraction Plate.

Note:[1]The Mixing Sleeves and the 96-Well Extraction Plate should be placed in the same slot when processing extraction (See illustrations above).

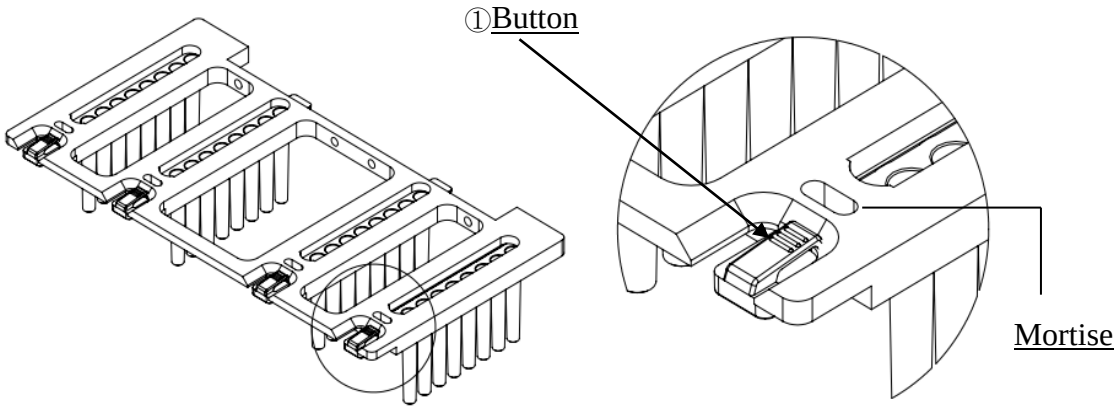
[2]Inadequate installation of **taco™** Plate & Sleeve may damage the machine.

2.6.2 Loading the Mixing Sleeve



No.	Item	Description
1	Tenon of Mixing Sleeve	Slide the Mixing Sleeve into position. Make sure the tenon on the Mixing Sleeve is inserted fully into the mortise on the lower rack.

2.6.3 Releasing the Mixing Sleeve



No	Item	Description
1	Button of Mixing Sleeve	Press the button to Mixing Sleeve to release.

Note: Using non-recommended consumables may affect the device performance.

3. Important notes

After receiving **taco™ 32**, please check the instrument and accessories for any damages. Should any questions arise, please contact your local distributor or GeneReach immediately. Any damaged components may lead to poor performance of the instrument.

3.1 Safety Information

⚠	**Not following the instructions may cause personal injury or device failure.**

- Place **taco™ 32** in a room with good ventilation.
- Make sure the working area is clean, dry, flat, and vibration-proof; leave enough room for cables, lids, and other accessories.
- Do not touch any plugs and electric switches with wet hands. Make sure to keep **taco™ 32** away from water.
- Do not unplug by pulling on power cord. Hold the plug, not the cord, to unplug.
- Keep power cord away from any hot surface.
- Turn off and unplug the machine before moving it.
- Package **taco™ 32** carefully before moving and/or delivery. Vibrations or crashes may lead to damage.
- Users should revalidate **taco™ 32** if the device has been moved.
- Waste disposal must be in compliance with local laws.
- When handling infectious materials, always wear a lab coat, disposable gloves and protective goggles.
- Do not look straight at the UV light while lights are on.
- Do not repair the machine yourself, including fixing the door and changing the UV lamp. Contact your local distributor or GeneReach directly to deal with the problems.

3.2 Emergency Stop

3.2.1 Should any emergency occur, press the "**PAUSE**" button or turn off the "**MAIN SWITCH**" to stop **taco™ 32**.

3.2.2 After all emergency is cleared, please follow the instruction to resume/restart the **taco™ 32** (See 4.1 & 4.2).

4. Operation Procedure of taco™ 32

4.1 How to Start the taco™ 32

4.1.1 Load the reagent to 96-Well Extraction Plate in advance (See **taco™** nucleic acid extraction kit manuals for instruction).

Note: Please make sure the total volume of each well does not exceed 900 μl before extraction.

4.1.2 Plug in **taco™ 32** and switch on the main power. The device will complete self-check within 3 minutes and be ready when the **"Run/Stand By" signal lights are on**.

4.1.3 Press the door button to open the door of **taco™ 32**, load 96-Well Extraction Plate and Mixing Sleeves according to the instructions (See chapter 2.6 "Loading Plate & Sleeve").

4.1.4 Push the 96-Well Extraction Plate and Mixing Sleeves into the plate holder and lower rack, respectively. Ensure they are in the correct position.

4.1.5 Press the door button of the **taco™ 32** to close the door.

4.1.6 Press "**START**" to begin the extraction.

Note: Operate **taco™ 32** only under room temperature (16~30˚C).

Note: Under the circumstances listed below, the **"START"** button is **nonfunctional**:

- The UV lamp is on.
- While the door of **taco™ 32** is open.

4.2 How to Pause taco™ 32

4.2.1 During the extraction, press the "**PAUSE**" button to stop **taco™ 32** if necessary. The **yellow LED** will flash while the device is paused.

4.2.2 The magnetic rods module and Mixing Sleeves will move up to the top together.

4.2.3 Close the door of **taco™ 32**, and press "Start/Resume" to resume the extraction.

Note: Under these circumstances listed below, the **"Pause"** button is **nonfunctional**:

- During the drying and transferring process of magnetic bead.
- The UV lamp is on.

4.3 How to Reset taco™ 32

4.3.1 After the extraction is finished, the **yellow LED light will be on together with a long beep sound**.

4.3.2 **Long press** the **"DOOR"** button to stop the alarm, and open the door.

4.3.3 Take out the 96-Well Extraction Plate and Mixing Sleeves; the extracted nucleic acids are ready for subsequent applications.

4.3.4 To reset **taco™ 32, long press** the **"PAUSE/RESET"** button.

4.3.5 After a short beep sound, **taco™ 32** is reset and ready when **the green LED lights are on**.

Note: Please transfer the extracted nucleic acids to a new tube immediately after extraction. Quality of nucleic acids may decline otherwise.

Note: The **"Reset"** button is **only** functional when:

- Under **PAUSE** status.
- Extraction is finished.

4.4 When and How to Turn on UV Lamp

4.4.1 After the extraction is finished, remove the 96-Well Extraction Plate and Mixing Sleeves and press the **"RESET"** button.

4.4.2 Press the **UV light switch** at the rear of **taco™ 32** to turn on UV lamp for sterilization of the space.

4.4.3 Sterilization will continue for 30 minutes. To manually turn off the UV lamp, press the **UV light switch** again.

Note: Under the circumstances listed below, the "**UV light**" switch is **nonfunctional**:

- Reset is not done after extraction.
- The door of **taco™ 32** is open.
- During the extraction process.

4.5 How to Shut Down taco™ 32

4.5.1 Before switching off **taco™ 32**, please make sure the 96-Well Extraction Plate and Mixing Sleeves are removed from the device.

4.5.2 Press the door button to close the door.

4.5.3 Turn the main switch off.

5. Cleaning and Maintenance

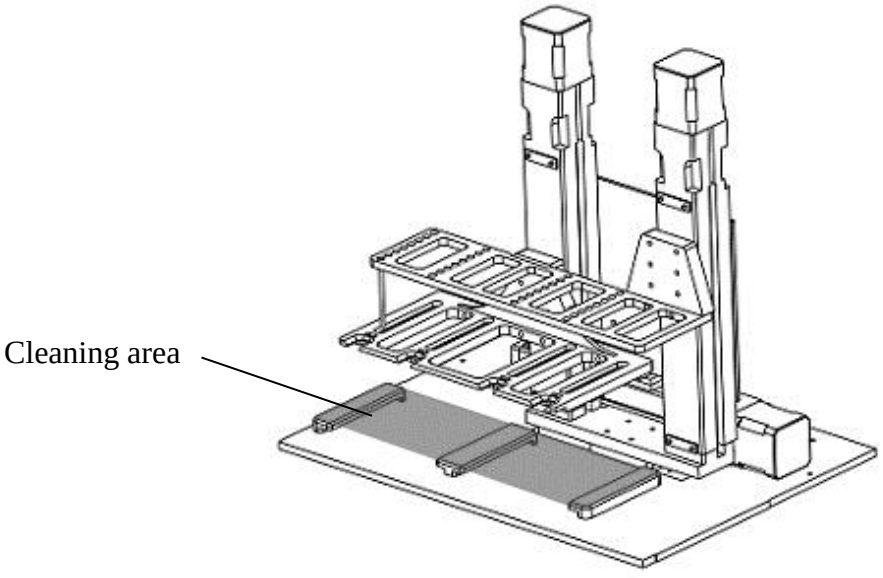
5.1 General Care

- Do not disassemble **taco™ 32** for cleaning. This will void the warranty.
- Never allow liquids to sit on any surfaces of the device for extended periods of time.
- Do not use solvents, detergents or bleaches to clean the magnetic rods. Use only clean and wet paper towel to wipe off stains on magnetic rods.

Note: Wear gloves or other protective gears. Always turn off and unplug **taco™ 32** before cleaning.

5.2 Dealing with Spills

- Wipe off any visible stains on the cleaning area (see illustration below) with disposable paper towel immediately.
- In case of serious liquid spills, please contact your local distributor or GeneReach for assistance. Do not dismantle the instrument for cleaning.
- Please make sure the total volume of each well does not exceed 900 μl before extraction.
- Using UV light for sterilization after each extraction is recommended.



Troubleshooting

	Comments and Suggestions
taco™ 32 does not perform normally	
(a) No LED light signals	• Check to see if the plug has been connected to the power system. • Check to see if the main power has been switched on. • Check voltage of electricity outlet (see *2.2* ***taco™ 32*** *Specifications*). • Contact your local distributors or GeneReach for assistance.
(b) Self-test too long	• Contact your local distributors or GeneReach for assistance.
(c) The magnetic rods module and lower racks are not in the correct positions	• Contact your local distributors or GeneReach for assistance.
(d) Unusual noises from the machine.	• Check the Mixing Sleeves to see if they have been pushed into the lower rack. • Check the 96-Well Extraction Plate to see if it has been pushed into the plate holder. • Check that there is nothing preventing the track from moving. • Contact your local distributor or GeneReach.
(e) Liquids spill and adhered to device	• The total volume of each well should not exceed 900 μl. • Use UV light for sterilization and then clean **taco™ 32** with water or a laboratory detergent. Repeat the extraction procedures with new samples and reagents.
Magnetic rod function failure	
(a) Stains on the magnetic rod.	• Ensure the Mixing Sleeves are installed before each extraction. • Use clean and wet paper towel to wipe it out carefully. Do not use any solvent or detergent to clean the magnetic rods.
(b) The magnetic rod comes off from the heat-shrink sleeve	• Contact your local distributor or GeneReach.

Comments and Suggestions

UV Lamp function failure

UV light signals not on	● Check that the door is closed. The UV lights are designed not to operate while the door is open. ● Check to see if **taco™ 32** is in extraction mode. UV lights cannot operate during extraction. ● Contact your local distributor or GeneReach for assistance.

Door function failure

The door of **taco™ 32** cannot be opened/closed normally	● Contact your local distributor or GeneReach for assistance.

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